IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	**Robert D. Freeman**		
Title:	**Tilt Focus Mechanism For An Optical Drive**		
Application No.:	**09/815,377**	**Filing Date:**	**March 21, 2001**
Examiner:	**Julie A. Watko**	**Group Art Unit:**	**2653**
Docket No.:	**M-8745-1P US**	**Confirmation No.**	**3940**

Irvine, California
May 4, 2006

Via Facsimile to (571) 273-8300

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1) Transmittal of Appeal Brief; and
2) Appellant's Opening Brief.

Dated: May 5, 2006

Saundra L. Carr

Number of pages (including this sheet): 12

MacPherson Kwok Chen & Heid LLP
1762 Technology Drive, Suite 226
San Jose, CA 95110

Telephone: (949) 752-7040
Fax: (408) 392-9262 and (949) 752-7049

LAW OFFICES OF
MACPHERSON KWOK CHEN
& HEID LLP

1762 TECHNOLOGY DRIVE
SUITE 226
SAN JOSE, CA 95110
(949) 752-7040
FAX (408) 392-9262

Fax to USPTO

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TRANSMITTAL OF APPEAL BRIEF	Docket No. M AB-8745-1P US

In re Application of: Robert D. Freeman

Application No.	Filing Date	Examiner	Group Art Unit
09/815,377	March 21, 2001	Julie A. Watko	2653

Invention: **TILT FOCUS MECHANISM FOR AN OPTICAL DRIVE**

TO THE COMMISSIONER OF PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed: January 26, 2006 .

The fee for filing this Appeal Brief is $250.00 .

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Dated: May 5 2006

Jonathan W. Hallman
Attorney Reg. No.: 42,622
MacPherson Kwok Chen & Heid LLP
1762 Technology Drive, Ste. 226
San Jose, CA 95110
(408) 392-9250 Facsimile: (408) 392-9262

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Dated: May 5 , 2006 Signature: Saundra L. Carr
Saundra L. Carr

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Robert Freeman

Application No. 09/815,377

Filing Date: 03/21/2001

For: Tilt Focus Mechanism For an Optical Drive

Examiner: Julie Anne Watko

Art Unit: 2653

Attorney Docket No.: M-8745-1P US

APPELLANTS' OPENING BRIEF

Real Party In Interest

The real party in interest is DPHI Acquisitions, Inc., the present assignee of US Application No. 09/815,377.

Related Appeals and Interferences

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1 is pending and finally rejected.

Claims 2-21 are withdrawn.

The rejection of claim 1 is appealed.

Status of Amendments

No amendments have been filed subsequent to the final Office Action dated July 26, 2005.

Summary of Claimed Subject Matter

The present invention relates to an actuator assembly for an optical disk drive. In conventional optical disk drive systems such as the CD-ROM or CD-RW drive found in personal computers, the optical pickup unit is carried in a "sled" that translates with respect to a frame in a linear fashion so that the optical pickup unit can track across the disk. The Lee reference (USP 6,236,634) cited against claim 1 uses a similar tracking mechanism: as can be seen in the cover figure 9 of Lee, a flying head 29 is translated in a linear fashion by "head positioning mechanism 203."

In an alternative pivoting scheme that is typically found in the magnetic hard drives provided in personal computers, a pickup unit is pivoted on an arm analogously to a phonograph record arm. A pivoting arm is illustrated in Figure 2 of the Alon reference (USP 6,449,225) also cited against claim 1.

Applicants have provided an actuator assembly that uses neither of these just-described approaches. Instead, Applicants' assembly includes a tracking arm and a distal focus arm. This inventive feature is found in each and every species that were restricted out of this application. The elected species A is shown in Figures 3 – 12. As described with regard to Figures 3-8 starting on, for example, page 17, line 14 through page 19, line 11 of the specification, the tracking arm (element 24) includes a focus arm (element 26) disposed on the distal end of the tracking arm. The tracking arm rotates through a pivot activated by a voice coil motor (VCM element 28). As seen for example in Figure 3, the focus arm includes an optical pickup unit (OPU element 22). This unit includes the opto-electronics for sending the laser beam focused in objective lens 90 and converting the resulting reflected laser beam into electronic signals carried over flex circuit 84 as discussed, for example, on page 19, lines 12 – 19.

The resulting actuator assembly is very compact as compared to the prior art designs discussed previously. These advantageous features are reflected in claim 1 as indicated by the bracketed notations: Claim 1. An optical disk drive comprising:

a housing including a base portion [illustrated as drive 14 in Figure 2]; and

an actuator assembly [the tracking arm 24] having a first end, the actuator assembly being pivotally mounted to the base portion to movably position the first end parallel to a surface of an optical disk, the actuator assembly including a portion [the

focus arm 26] pivotally mounted to the remainder of the actuator assembly and configured to position said first end along an arcuate path that is substantially perpendicular to the surface of the disk; and an optical pick up unit [the OPU 22] connected to the portion, said optical pick up unit acting to focus a light beam on said optical disk.

Grounds of Rejection to Be Reviewed on Appeal

1) Whether, under 35 U.S.C. § 103(a), claim 1 is obvious over U.S. Patent No. 6,236,634 to Lee, et al in view of U.S. Patent No. 6,449,225 to Alon.

Argument

1). The Lee reference does not disclose or suggest the inclusion of an optical pickup unit on its pivoting portion.

As discussed above, one of the innovative features of Applicants' invention is that the optical pickup unit is connected to "a portion pivotally mounted to the remainder of the actuator assembly and configured to position said first end along an arcuate path that is substantially perpendicular to the surface of the disk." In this fashion, as the objective lens within the OPU is moved for focusing purposes, the remainder of the electronics in the OPU moves with it. But note that this is plainly note the case in the Lee reference. Instead, as seen in Figure 10, only the lens 1 is attached to arm 103. The laser and remaining electronics in the "OPU" of Lee is shown as dotted element 301 (Col. 15, lines 65-67). Such a design introduces considerable optical complication because the optical path between Lee's laser source (and the necessary photodetectors) and the lens will change as arm 103 flexes. In sharp contrast, because Applicants' OPU is integrated into the distal portion, the optical path between the lens and the photodetectors never changes during tracking or focusing operations.

2.) The Alon and Lee references do not suggest or teach the desirability of the claimed invention

As set forth in MPEP § 2143.01, obviousness "can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art." Thus, motivation to combine references is improper if the motivation is gleaned from the Applicants' disclosure. But that is precisely what was done in the July 26th final office action.

In that regard, the Examiner has recognized that the Alon reference (USP 6,449,225) is "silent regarding a portion pivotally mounted to the remainder of the actuator assembly." Indeed, Alon plainly shows a rigid, one-piece, "swing arm" (element 22) in Figure 2. As discussed with regard to Figure 3a and 3b, Alon's optical pickup unit (element 30 or 31) may be mounted at the distal end of the swing arm on an axis 35 or

39. Portions of these units rotate about an axis (elements 35 or 39 in Figs. 3A and 3B, respectively) to compensate for the rotary motion of the swing arm (see, e.g., Col. 6, lines 3 – 6). The swing arm must carry an objective lens (element 18) at its distal end to form the laser beam spots (elements 26) of Figure 2. To provide focusing, Alon states in Col. 3, line 55 that there is a "servo mechanism" to move objective lens 18 to maintain focus. Referring again to Fig. 3a and 3b, that actuation must be with regard to the "optical assembly" of the optical pickup unit (element 33). In the embodiment of Figure 3b, that actuation would be internal within the optical assembly.

Rather than have the complication of a rotating optical pickup unit at the distal end of the swing arm, Alon disclosed in Figure 3c that just the prism 17 and objective lens 18 could be disposed at the end of the swing arm. Regardless of the embodiment chosen by Alon, the objective lens must thus be held by an actuator that either pulls or pushes the lens with respect to the swing arm. The swing arm stays as a rigid, one-piece member as shown in Figure 2 throughout this focusing.

Applicants claimed actuator assembly is dramatically different in that the focusing is accomplished through the provision of a pivotally-mounted distal portion. To provide the motivation to provide such a portion, the Examiner points to the Lee reference (USP 6,236,634), which disclosed the provision of a distal pivoting portion solely for the lens not the OPU on a non-pivoting arm that is moved in a "sled" type fashion for tracking as seen in Lee's Figure 9. This type of "X plane" translation is standard in the optical disk arts and is akin to the motion imparted to the pen in the familiar "etch-a-sketch" toy. For example, if one were to pry the CD-ROM optical drive out of their personal computer, this same type of translation would be seen for tracking purpose.

Thus, Lee and Alon are like oil and water: one uses a conventional sled format for tracking and the other uses a pivoting swing arm. To provide the motivation to combine such disparate approaches, the Examiner states in part that one would want to "avoid a head crash from a flying height that is too low." Such a statement has no application to the Alon reference – Alon is a standard "far field" optical system that does not involve the "flying head" of Lee wherein the lens rides on the disk. The Examiner adds that additional motivation would be "to keep a light beam focused on the surface of the optical disk as taught by Alon." However, as discussed above, Alon performs his

focusing without any such pivoting portion. Thus, the motivation to combine simply boils down to a hindsight "it strikes me as obvious" determination.

Applicants respectfully point out that inventions always build upon what is known. Here, Applicants readily admit that it was known to employ swing arms for tracking. Moreover, in the context of sled tracking, it is known to employ a pivoting portion for moving the objective lens. But it was not known to combine a swing arm with a pivoting portion for focusing, wherein the pivoting portion contained the OPU. Such a development involved millions of dollars of engineering and resulting invention. Indeed, such a combination leads to an undesirable coupling of focusing and tracking, which Applicants solved through their inventive "all-digital servo," the subject of numerous other issued and pending applications. Applicant invented this unusual combination because it leads to dramatic miniaturization improvements. In sum, it is clear error to combine the teachings of Alon and Lee reference: 1) Lee teaches the separation of the OPU from the objective lens whereas Alon integrates them; and 2) Lee teaches the pivoting of a portion holding the objective lens for focusing whereas Alon teaches the actuation of the objective lens themselves. Thus, to combine these references, the Examiner must willy-nilly select various conflicting features from each reference in a strained manner that can only be motivated through a reading of Applicants' disclosure.

Therefore, in light of the foregoing arguments, Applicants respectfully request the Honorable Board of Appeals to reverse the decision of the Examiner with respect to claim 1.

Respectfully submitted,

Date: May 1, 2006

By: _____

Jonathan W. Hallman
Reg. No. 42,622

Claims Appendix

Claim 1. An optical disk drive comprising:

a housing including a base portion; and

an actuator assembly having a first end, the actuator assembly being pivotally mounted to the base portion to movably position the first end parallel to a surface of an optical disk, the actuator assembly including a portion pivotally mounted to the remainder of the actuator assembly and configured to position said first end along an arcuate path that is substantially perpendicular to the surface of the disk; and an optical pick up unit connected to the portion, said optical pick up unit acting to focus a light beam on said optical disk.

Claims 2 – 21. (withdrawn)

Evidence Appendix

No evidence was submitted under Rules 130, 131, or 132.

Related Proceedings Appendix

There are no related proceedings.